

*DRAFT¹**September, 2011*

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- Entries in Blue type identifies significant treatment plant events;
- Entries in Orange type identifies significant discharge events;
- Entries in Grey type identifies significant Consent Decree events;
- Entries in lavender type identifies significant Gladstone Treatment Project events.

The following was compiled by Bill Simon from various reports, conversations and written communications with people involved with the activities noted. It is intended for basic use in assisting one in understanding the chronology of events associated with the water discharges of the Sunnyside mine and other mines in the Gladstone area and possibilities for the development of appropriate treatment method(s). Conflicting opinions and understandings from the people and companies involved may exist. It is not the intent of this writer to determine which opinion is correct.

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Nov., 1993 Technical Revisions to the Reclamation Plan, including bulkheads installations, approved by the MLRB.⁵

May, 1994 Sunnyside Gold Corporation (SGC) filed for Declaratory Relief requesting that the Court determine whether seeps and springs that occurred after proposed bulkheading would be subject to the NPDES requirements.⁶

Summer, 1994 WQCC hearing on implementing new "goal based" water quality standards; resulted in ARSG accepting the challenge to determine conditions, determine feasibility for remediation, and make recommendations for achievable water quality standards throughout the Animas Watershed.

Fall, 1994 ARSG formed and Bill Simon hired as Coordinator.

1995 Mogul and Grand Mogul mines purchased at tax sale by Salem Minerals, Inc.. Later transferred to San Juan Corp (Todd Hennis, President of both).⁷

¹ Caution: the dates and related text are intended to be accurate but not guaranteed to be. I would appreciate any information useful to make corrections. In the meantime consider this a 3rd draft. Bill

² Silverton Standard and Miner, various issues from 1959 – 1961.

³ Larry Perino, SGC, verbal communication, fall 2010

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1995 - Proposed SGC consent decree open for public comment; ARSG had not yet reached consensus therefore did not comment. Individuals, landowners, etc. were encouraged to comment on their own.

May, 1996 SGC and WQCD entered into the Consent Agreement. "A" list remediation projects: Sunnyside Mine Pool, So Fork Cement Cr Mine Waste dump, Surface Mill Tailings at Eureka, Gold Prince Mill tailings and bulkhead, Koehler Longfellow Portal and Mine Waste Dump, Boulder Creek Mill Tailings, Pride of the West Mill Tailings. "B" list projects: Columbus Mine Portal, London Portal⁸

1996 - SGC/St. of Colorado Consent Decree (CD) approved.

1996 - SGC begins group A remediation projects including Koehler dump removal, Longfellow mine waste remediation, and the Koehler/Junction red sludge pond cleaning below these two sites. Lead Carbonate Tailings Pond was removed in 1995 as an "A List Project". Eureka Tailings removal was completed in 1996. A List projects completed in 1997 included Ransom Tunnel bulkhead, Boulder Creek Tailings removal, Pride Tailings removal, Gold Prince bulkhead, tailings and waste dump isolation. Alkaline injection into the mine pool was also a CD project as was the treatment of Cement Creek.⁹

Summer, 1996 - American Tunnel 1st bulkhead installed. (Valve closed on July 29, 1996, then opened to meet Town of Silverton's need to stop a "call" on water in the Animas. Valve closed for good on September 9, 1996.¹⁰ SGC begins treating CC as part of CD.

April, 1997. Joint petition to amend CD (#1). Added Appendix to preserve historic structures at the Gold Prince and add the Ransom Portal mitigation.¹¹

Oct., 1997. Completed projects: Sunnyside Mine pool, American Tunnel waste dump, Surface Mill tailings at Eureka, Gold Prince, Koehler/Longfellow Mine dumps, Boulder Creek tailings, Pride of the West tailings, Ransom Portal.¹²

Jan. 1999. Joint petition to amend CD (#2). Added additional "B" List projects (Mayflower Facility – Upland Hydrologic control, Tailing Pond #4 surface drainage modification, and Tailing Pond #4 upland groundwater diversion.¹³

Aug., 1999 - S. Fearn becomes principal of Gold King Mines Corporation (including the Anglo Saxon and Harrison MS claims) purchased from CCTC, an Oklahoma company. Tom Warlick becomes holder of the first mortgage¹⁴. S. Fearn sealed four portals on Gold King property and noted that drainage flow had recently increased.¹⁵

⁷ Larry Perino, SGC, written communication, fall 2010

⁸ Sara Johnson (WQCD), written communication, fall 2010

⁹ Larry Perino, SGC, written communication, fall 2010

¹⁰ Larry Perino, SGC, written communication, fall 2010

¹¹ Sara Johnson (WQCD), written communication, fall 2010

¹² Sara Johnson (WQCD), written communication, fall 2010

¹³ Sara Johnson (WQCD), written communication, fall 2010

¹⁴ Steve Fearn, GKMC, by written communication; edited by Todd Hennis

¹⁵ Bruce Stover (CDRMS) by verbal communication, Dec. 2010

Sept. 1999 Mogul discharge begins increased flow¹⁶

1999 – 2001 Gold King discharge increases from 2.7 – 7 GPM to 31 to 72 GPM; metal load remains about the same however.

1999 – 2003 Mogul mine discharge increase is noted on Sept.-Oct., 1999; eventually increasing up to 200 GPM.¹⁷ ARSG data after 2003 also indicated an increased flow since our 1997 sample.

1999 – 2003 Sunnyside did supplemental CD projects, Mayflower Mill/TP#1 upland diversions, TP4 toe ditch liner and upland diversions.

May, 2001. Last sample taken from AT #1 bulkhead.¹⁸ Sunnyside Mine pool thought to have reached equilibrium. (This condition was required to be met before additional bulkheads could be installed downstream in the AT).

August, 2001. American Tunnel 2nd bulkhead installed; valve closed on August 31st.¹⁹

Fall, 2002 Gold King Mines Corp. (GKMC) purchased the Mogul mine from San Juan Corp. (SJC, Hennis, president) for a note²⁰. As additional surety to secure the note, GKMC gave SJC a second mortgage on the Anglo Saxon and Harrison MS (which included the water treatment facilities and settling ponds, respectively, at Gladstone).²¹

Fall, 2002. SGC and GKMC enter into agreement(s) for GKMC to take over the SGC treatment plant, treat Cement Creek for 6 months and the remaining discharge from the AT, (which allegedly is the historic flow originating from fault zones in the Gold King property and which they were interested in treating as part of their mining plan)²². SGC had previously leased the Harrison and Anglo Saxon claims from GKMC. GKMC intended to use the treatment plant to treat Gold King mine discharge as part of their mining plan. GKMC agreed to install bulkheads at the Mogul and Koehler mines. SJC became owner of Herbert Placer.²³

2002? Settling ponds were on Herbert Placer (San Juan Corp got this property – basically to allow Mogul bulkhead to proceed).²⁴

December, 2002. American Tunnel 3rd bulkhead installed; valve closed on December 3rd.²⁵

2003 Mogul bulkhead was completed in August 2003 and Koehler bulkhead completed September 2003 by GKMC.²⁶

¹⁶ SGC data; confirmed by Todd Hennis (SJC) by oral communication, 2010

¹⁷ Todd Hennis, SJC, written communication, Jan., 2011

¹⁸ Larry Perino, SGC, written communication, fall 2010

¹⁹ Larry Perino, SGC, written communication, fall 2010

²⁰ Steve Fearn, GKMC, written communication, fall 2010

²¹ Steve Fearn, GKMC, written communication, fall 2010

²² Larry Perino, SGC, written communication, fall 2010

²³ Steve Fearn, GKMC, written communication, fall 2010

²⁴ Larry Perino, SGC, written communication, fall 2010

²⁵ Larry Perino, SGC, verbal communication, fall 2010

²⁶ Larry Perino, SGC, written communication, fall 2010; confirmed by S. Fearn, written communication, fall 2010

2003 Sunnyside completes a supplemental Power Plant Tailings Project and the construction of a reactive treatment wall below Mayflower Tailings Pond #4 as an amendment to CD.²⁷

Jan. 2003 CDPHE determined that the Terms of Consent Decree had been met.²⁸

Jan. 2003 CDPHE transferred the AT CPDES (discharge) permit to GKMC.²⁹

Jan., 2003 GKC begins treatment of AT, treated Cement Creek till June, 2003 and AT discharge until Jan., 2004

Related Agreements between SCG and other parties³⁰ (some dates provided elsewhere):

Amendments #3 & #4.

Amendment #5 projects completed: Power Plant tailings, Power Plant hydrologic controls, Passive reactive wall construction (per presentation by Larry Perino, 10/2004).

Baumgartner Agreement (SGC funds to facilitate bulkheading of the Koehler Tunnel).

San Juan Agreement (Herbert Placer deeded to SJC, SJC transfer Mogul to Gold King Mines, SJC leases settling ponds to Gold King for water treatment)

Gold King Agreement (bulkhead Mogul, AT treatment plant and other buildings transferred to Gold King, Transfer AT discharge permit to Gold King etc)

June to Oct. or Nov., 2003. CC was treated into 2003 except for a short period in 1999. The CC flows treated did vary from all of CC in winter to just a portion in the summers. The flows treated ranged from ~450 gpm to ~1600 gpm. This included both CC and American Tunnel so if American Tunnel was < 90 gpm then CC was the rest treated.³¹

July, 2003 Consent decree terminated.³²

July 4, 2003. Large discharge from Red and Bonita is noted by Hennis and reported to the State. San Juan County had already installed a culvert to prevent the county road from washing out from the discharge.³³

Summer, 2003 GKC installs pipe from GK to Gladstone and begins treatment of GK discharge.

August 2003. SJC notifies GKMC it is in default of Lease on Herbert Placer due to failure to maintain adequate liability insurance.³⁴

September 2003 GKMC unsuccessfully attempts to acquire insurance.

²⁷ Larry Perino, SGC, written communication, fall 2010

²⁸ Sara Johnson (WQCD), written communication, fall 2010

²⁹ Sara Johnson (WQCD), written communication, fall 2010

³⁰ Sara Johnson (WQCD), written communication, fall 2010

³¹ Larry Perino (SGC), written communication, fall 2010

³² Sara Johnson (WQCD), written communication, fall 2010

³³ Todd Hennis, SJC, written communication, Jan., 2011

³⁴ Steve Fearn, GKMC, written communication, fall 2010

October 2003 SJC demands GKMC cease using settling ponds.³⁵

November 2003 District Court finds in favor of SJC – an agreement is worked out to permit continued operation of water treatment plant if insurance is acquired and a new short term lease is negotiated.³⁶

January 2004 GKMC acquires liability insurance through SGC's parent company and a new short term lease is signed between GKMC and SJC^{37, 38, 39}.

January., 2004 Severe snowstorm closes County Road to Gladstone for one week. No access was available to run standby generator, resulting significant freeze damage of water treatment equipment. The back-up lime treatment plant (Terry Tunnel portable plant) was re-activated and the plant came on line in February. This resulted in the discharge at Gladstone (AT treatment) out of compliance. Treatment continued but due to variable operating conditions, some excursions resulted in out of compliance parameters, which were reported to the CDPHE.⁴⁰

May, 2004 SJC alleges multiple defaults of new lease agreement. Issues largely stem from effects of January snowstorm damages.⁴¹

May, 2004. Active water treatment had almost ceased and the untreated flows were going into the settling ponds where the resultant precipitates were acidifying the two million gallons of previously lime treated sludges, creating a much larger environmental problem. In the words of one State official, "Gold King has had only a part pallet of lime and it's not being used." Colorado Department of Health Hazardous Materials Sections threatens SJC with removal action of the abandoned sludges in the settling ponds.⁴² Steve Fearn of GKMC rebuts this however, pointing out that they had not run out of lime and had arranged for delivery of more lime. GKMC continued to treat the Terry Tunnel discharge until they were shut down by the Court.

July, 2004 GKMC lease with SJC was apparently (?) modified so GKMC could install new equipment, new settling ponds, and restart treatment of AT. However treatment not restarted due to SJC renewing litigation between GKMC and SJC.⁴³ Or However treatment not restarted due lack of funds to purchase lime.⁴⁴ (Dispute between parties).

Sept., 2004 Simon first notices and reports on an increase of flow from Red and Bonita mine to 72 GPM.

September 2004 GKMC receives Notice of Violation/Cease and Desist Order from CDPHE.

³⁵ Steve Fearn, GKMC, written communication, fall 2010

³⁶ Steve Fearn, GKMC, written communication, fall 2010

³⁷ Steve Fearn, GKMC, written communication, fall 2010

³⁸ Todd Hennis, SJC, written communication, Jan., 2011

³⁹ Steve Fearn, GKMC, written communication, fall 2010

⁴⁰ Steve Fearn, GKMC, written communication, fall 2010

⁴¹ Steve Fearn, GKMC, written communication, fall 2010

⁴² Todd Hennis, written communication, Jan., 2011

⁴³ Steve Fearn, GKMC, written communication, fall 2010

⁴⁴ Todd Hennis, SJC, written communication, Jan., 2011

September, 2004 SJC demands GKMC vacate Herbert Placer settling ponds. SJC offers settling pond use to WQCD for emergency water treatment by WQCD or “another responsible party.” Mark Pipfer, Director of WQCD, (allegedly) replies “we have zero interest in that”.⁴⁵

Oct., 2004 Through action initiated by SJC, San Juan County District court ordered that GKMC cease and desist the use of the treatment settling ponds⁴⁶, due to GKMC’s loss of lease on the settling ponds. GKMC complies with Court Order and ceases treatment⁴⁷.

October, 2004 E.P.A. calls SJC to see if the settling ponds can remain for use. SJC offers the use of the ponds to EPA for water treatment as long as EPA will guarantee reclamation of the ponds when the use is finished. E.P.A. refuses.⁴⁸ However the EPA representative, C. Russell, stated that Mr. Hennis’ offer was conditional upon his receiving total liability relief from discharges from his mine sources (in the area).⁴⁹

Oct., 2004. WQCD initiated enforcement action re failure to comply with AT discharge permit.⁵⁰

Fall, 2004 ARSG requests EPA to provide a Targeted Brownfields grant to San Juan County to investigate increasing discharges from Gladstone area mines, determine practical treatment plant designs and discharge sources for treatment.

Winter, 2004-5. ARSG requests BLM to explore potential operational entities and funding mechanisms for a new Gladstone area treatment plant. BLM contracts with San Juan County to accomplish this.

2005 GKMC develops a plan to construct new settling ponds on Anglo Saxon Claim and re-start water treatment plant. GKMC is unable to fund the project.⁵¹

2005 After waiting for results of GKC/SJC proceedings through 2004, Sunnyside reclaimed the settling ponds per reclamation plan and a court order to GKMC requiring removal of sediments (sludges).⁵² Sunnyside expends a lot of funds for lime to de-acidify the sludges from the period when untreated water was put in the settling ponds.⁵³

Spring, 2005 San Juan County sponsors the Targeted Brownfields Initiative for Gladstone treatment possibilities. EPA begins data collection of key mine discharges and stream water quality.

Nov., 2005. SGC removed AT treatment ponds in accordance with their reclamation permit.⁵⁴

⁴⁵ Todd Hennis, SJC, written communication, Jan., 2011

⁴⁶ Sara Johnson (WQCD), written communication, fall 2010

⁴⁷ Steve Fearn, written communication, fall 2010

⁴⁸ Todd Hennis, SJC, written communication, Jan., 2011

⁴⁹ C. Russell (EPA) (verbal communication), Dec., 2010

⁵⁰ Sara Johnson (WQCD), written communication, fall 2010

⁵¹ Steve Fearn, written communication, fall 2010

⁵² Larry Perino (SGC), written communication, fall 2010

⁵³ Todd Hennis, SJC, written communication, Jan., 2011

⁵⁴ Sara Johnson (WQCD), written communication, fall 2010

December, 2005 GKMC loses the Gold King Mine Properties including the treatment facility and land area proposed for new settling ponds (on the Anglo Saxon and Harrison MS claims) through foreclosure action by CCTC (Tom Warlick). SJC, as second mortgage holder on the two claims, acquires the Gold King mine property including the Anglo Saxon and Harrison MS.⁵⁵

March, 2006 At the request of ARSG, GKMC applies for AT discharge permit renewal to keep the option open for a new operator to treat discharges in the Gladstone area. Permit renewal was denied.

May, 2006 San Juan County Attorney completes his BLM funded report on Gladstone treatment plant funding and operational potentials.

Sept., 2006 Targeted Brownfields Water Treatment Evaluation Report released.

Sept., 2006 Targeted Brownfields reports finalized. Reviewed and discussed by ARSG over several meetings. Potential funding sources explored. Sources for sludge disposal explored. High Density Sludge treatment plant determined to be effectual but problematic due to large sludge generation and disposal costs whether low or high density design. Todd Hennis suggests that a new rotary concentrator designed by Ionic Technologies, Inc might be added to increase efficiency.

Spring, 2007 Discharge from Gold King 7 level breaches the ditch and erodes large portion of the mine dump down into North Fork of Cement Creek. Mr. Hennis has some maintenance on the ditch performed.⁵⁶

Nov. 2007 Addendum to the Water Treatment Evaluation Report released.

August, 2007 EPA and BLM assist Ionic Technologies in field testing of the rotary concentrator on American Tunnel and Cement Creek water. (Gold King was inaccessible due to length of unit). EPA contributed \$70K and BLM contributed \$41.1K to accomplish this field testing and associated activities such as SAP/QAPP, analytical, and statistical fees.⁵⁷ SJC and Colorado Goldfields also contribute to the Ionic Technologies field testing.⁵⁸

2007 Simon encourages that new and/or innovative water treatment technologies be explored. Several companies participate. (On-going)

2007 Simon suggests that the ARSG explore developing a pilot demonstration plant designed to test various new and emerging treatment technologies that would serve the nation and eventually would result in a practical technology being chosen for permanent installation at Gladstone. (On going)

June, 2008 Hennis advises ARSG and EPA that Blue Sky Water technologies may have an alternative treatment technology. He requested E.P.A. to do a split of water samples from the scheduled Ionic Technologies field test but this was not accomplished.⁵⁹

⁵⁵ Steve Fearn, written communication, fall 2010

⁵⁶ Bruce Stover, verbal communication, Dec. 2010.

⁵⁷ Kay Zillich, BLM, verbal communication, Dec., 2010

⁵⁸ Todd Hennis, SJC, written communication, Jan., 2011

⁵⁹ Todd Hennis, SJC, written communication, Jan., 2011

2008 – 10 - Peter Butler begins exploring various permitting options that might be used to maximize flexibility and minimize permit requirements, including the legal possibilities of combining the discharges and waste streams of the Gladstone area mines owned by BLM, Corporations, and private owners. ARSG continues support of Good Samaritan legislation likely necessary for a collaborative, multi-party, and multi-source treatment facility. (www.goodsamaritaninfo.org)

Fall, 2008 - Blue Sky Water Technology (Ionic State Modification or ISM) receives water samples shipped by ARSG from AT and GK 7 level for bench tests. ARSG also shipped water samples from those sources to Compliance Consultants for bench testing their ionic exchange process.

2008 - Field Test of Tusaar's tea bag type treatment of North Fork of Cement Creek using a two phase transition metal immobilization process.

Nov., 2008 - BLM reports on final test results of Ionic Water Rotating Cylinder demonstration run for Gladstone area waters.

Feb. 2009 - Blue Sky Water Technology presents results of AT and GK bench treatment test results from Fall, 2008 AT and Gold King 7 level sample water.

Fall, 2009 - 2010 - Contacts made with Biotech regarding their new treatment process undergoing initial startup treatment at the Wellington Oro mine near Breckenridge. Biotech is working out kinks and will contact us when ready to provide details and possibilities for use.

We could add data reviews to this time line as well to indicate when and how much we recognized changes in metal concentrations and loads to Cement Creek and discharges from the Gladstone mines if desired.